

DR. WHITMAN said that in the last edition of Hamilton's work on Fractures, he had recently noted a quotation from Robert Smith as to the prognosis in fracture of the neck of the femur, as follows: "In all the functions of the limb are forever impaired. Whether the fracture is within or without the capsule, whether united by ligament or bone, shortening of the limb and lameness are the inevitable results."

The two patients presented by Dr. Walker thus disposed of another tradition. The speaker said that for the past eighteen years he had been writing papers and presenting cases to prove that this accident was not uncommon in young and vigorous subjects. He had seen upwards of forty cases of fracture of the neck of the femur in childhood, and many cases in young adults. The neck of the femur was a weak point, and it might be broken by slight violence if advantageously applied. Until these facts were accepted by teachers this fracture would continue to be overlooked in the most favorable class of cases by those who had the opportunity to make the diagnosis when effective treatment might be applied. He was particularly interested in cases of this class. For example, the incomplete or impacted fracture at the base of the trochanter was supposed to be relatively common in young subjects. The present teaching was that no treatment should be employed other than to prevent disengagement, consequently all recovered with a limp which was usually complicated by adduction of the limb and practical shortening. He believed that the attempt should be made to rectify the deformity by gentle traction and abduction, followed by immediate fixation in the manner that he had described. He said the cases presented by Dr. Walker were of particular interest to him because the method had been applied by those who had no previous experience, or special training, in the use of plaster of Paris.

DR. ERDMANN said that a few days ago he was called in consultation to see a case of retention of urine in a patient who had sustained a fracture of the femur about seven years ago. The limb was put up by him in abduction and rotation, the method described a year later by Whitman, and the result was absolutely perfect, in spite of the fact that no special devices, such as the one demonstrated by Dr. Whitman, were made use of.

Dr. Erdmann said he had recently had two cases of fracture of the femur in aged people where it did not seem advisable to

give an anæsthetic. Instead of confining those patients to bed, he had them comfortably fixed in an invalid's chair.

DR. ROBERT H. M. DAWBARN said that one of the speakers apropos of the statement by Dr. Walker that the Bellevue statistics showed a large percentage of their patients dismissed at the end of fifteen days, with fracture of the femoral neck—had criticized this early dismissal as indicative of careless treatment—to use his own words. Dr. Dawbarn thought it fairer and more just to assume, instead, that they had deliberately chosen the second horn of the dilemma presented by these fractures when in old people—the ordinary choice being between attempted bony union with its probably months of immobilization upon the back, with Buck's extension with pulleys and heavy weights—and the terribly frequent result of death from hypostatic pneumonia; or as the second horn, to attempt no union of the fracture, but after recovery from any possible shock, to dismiss the case to permanent lameness and use of crutches.

Dr. Whitman's ingenious plan deserves a fuller trial than in adults it has yet had; and Dr. Walker's results are certainly excellent. In a single point would Dr. Dawbarn venture respectfully to differ from him; namely, his approval, in his paper as printed, of separating, however gently, the fragments in an impacted fracture here—unless the limb should be found rotated so very far outwards or (rarely) inwards as to constitute a really objectionable deformity. Otherwise, and if in later moderately good position of the fragments, an impaction is a blessing.

Dr. Dawbarn thought the present a most appropriate opportunity in which to present briefly the main points of yet another plan of handling, with good reason to hope for bony union and this accomplished both simply and safely. This was the nailing together of the fragments, not by a formidable open operation such as have sometimes been done with success, involving detaching the glutei muscles, dividing the capsule and wiring or spiking the fragments openly. Instead, after from one to three days in bed with Buck's extension, until the normal relationship of the fragments is restored, as ascertained chiefly by comparing the lengths of the base-line of Bryant's triangle, upon both sides, the patient's skin is prepared for operation, which is done in from ten to fifteen minutes depending upon depth of subcutaneous fat. The work is done without removing the patient from the cotbed,

nor displacing the steady tension from the Buck's extension. It is painless, because of cocaine, injecting $\frac{1}{2}$ of one per cent. in the skin, and $\frac{1}{6}$ to $\frac{1}{10}$ of one per cent. beneath, and in the periosteum. The bone interior needs none—thus far in his experience. The incision has its midpoint about 3 inches below the top of the great trochanter. After drilling through the dense bony cortex, a long, slender steel trochar is introduced in a direction between 125 and 130 degrees from the long axis of the shaft; also *forward*, remembering the normal direction in which the femoral head looks, relatively to its trochanter major. It is very easy to recognize the feel of the dense bone of the cortex of the head, as approached by the probe-like trochar. One may deviate at least five degrees from that estimated in any direction, and still if starting his nail at the proper point upon the outer and posterior surface of the shaft (about three inches in a six-foot man, below the trochanter-top) his nail or spike will be within the interior of the bone. The previous examination by a steel probe makes sure of this. In one case the trochar met with positive obstruction before reaching the nearest possible point where a fragment of broken femoral neck could account for this. Upon raising the advancing searcher a little it passed beyond without further trouble. Plainly this was the apex or upper edge of the "Schenkelspoon." The average length of smooth, round, steel nail used is at least three inches. If its point is nearly in contact with the cortex of the head its base will be buried, then, more than an inch within the bone of the shaft, in a femur of ordinary dimensions. The head is filed off, and the base so made is slightly hollowed, to prevent slipping of the "nail-set"—*i.e.*, a similar, but unfiled nail, used to drive the first home.

In course of years this nail should either—like other small sterile pieces of iron or steel buried within the body—gradually change to Fe_2O_3 and slowly disappear, or else remain encysted and harmless. In one case he had used an aluminum spike instead of steel—expecting its absorption by the alkaline activities of the blood serum, into aluminum hydrate.

Dr. Dawbarn said his cases have as yet been but few, and only one in private practice. That one, an old lady of over seventy, had originally close to one and a half inches of shortening. She was of course kept in bed as many weeks as if no spike had been used; but without the danger of the hypostatic pneumo-

nia; because, when spiked, and the Buck's extension removed, she did not remain long upon her back, nor in any other one position. She could safely turn in any posture in bed, although doubtless in the early weeks the union would have given way had she attempted to stand. The final result was excellent. Both base lines of Bryant were apparently of the same length. The patient herself, however, was not at all satisfied. She had recently developed a bad case of the scoliosis of the aged, and it advanced speedily in deformity. Her broken thighbone was her right one. The major curve of her scoliosis was as usual toward her right in its convexity; the minor curve below being of course toward the left, and this lifted her right hip strikingly, and of course produced an apparent shortening of the femur not really present. Added to this there was rheumatic pain in the involved hip-joint.

DR. WHITMAN asked Dr. Dawbarn if he recalled the work of the surgeon who had devised the method of spiking the two fragments in fracture of the neck of the femur? He, Nicolayson, drove the nail through the neck and into the acetabulum without an anæsthetic. The results were apparently good. His own objection to the method was that nails do not as a rule serve as persistent supports, but become loose. He preferred therefore to insert a strong drill which could be more easily directed by means of a handle, and when detached could be driven beneath the skin. When it loosened it could be easily removed through a small incision.

DR. DAWBARN, in reply to Dr. Whitman, said he did not recollect the name of the Swedish surgeon who had long advocated spiking, and who does extensive operation, and even has spiked deliberately the femoral head to the acetabulum which the advancing-nail intentionally pierces.

As to the further inquiry of Dr. Whitman whether the permanently remaining nail may not set up a softening and disease of the surrounding bone with time. We used often to see that and indeed occurring in a few weeks time, when as formerly was the rule, spiked the bones together after sawing, in operating, for instance, upon a tuberculous knee. But these bones, while not tubercular to the eye where spiked, are undoubtedly far from normal. Osteoporosis would therefore readily occur, when no such thing would result in bones not of a tubercular diathesis.